

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph beginning on page 2, line 18, with the following amended paragraph:

Various attempts have been proposed in which the surface of an active material is modified with an element of a different kind to improve performance. In patent documents 1 to 4 is described a method in which the surface of an active material is coated with aluminum to thereby improve electron conductivity. However, this method has been insufficient in inhibiting the oxidative decomposition of electrolytes ~~in a positive-electrode field~~ on a positive electrode, although it surely improves the electron conductivity of the particle surface.

Please replace the paragraph beginning on page 11, line 22, with the following amended paragraph:

This is thought to be because the element in Group 3 of the periodic table, which is present on the surface of the base particles able to dope and release lithium ions, serves to prevent the base particles from coming into direct contact with an electrolyte and thereby inhibits the positive active material from reacting with the electrolyte. The reason why the element to be deposited should be an element in Group 3 of the periodic table has not been fully elucidated. However, the inventors presume that since Group 3 elements have a characteristic f-electron orbit, the state in which a compound of the Group 3 element is present ~~in a positive-electrode field~~ on a positive electrode is characteristic in the inhibition of reactions with a liquid electrolyte.

Please replace the paragraph beginning on page 19, line 26, with the following amended paragraph:

The lithium secondary battery according to (14) above is characterized by having the positive electrode for lithium secondary batteries as described under ~~(8)~~ (13) above, a negative electrode employing a negative-electrode material able to dope and undope lithium ions, and a non-aqueous electrolyte. According to this constitution, the lithium secondary battery can be one which has improved charge/discharge cycle performance while retaining intact battery performances even after storage in a charged state.

Please replace the paragraph beginning on page 27, line 3, with the following amended paragraph:

The amount of the Group 3 element to be deposited ($= (\text{weight of the Group 3 element in terms of oxide}) / (\text{weight of the base} + \text{weight of the Group 3 element in terms of oxide}) \times 100$) ~~(= (weight of the Group 3 element in terms of oxide) / (weight of the base + weight of the Group 3 element in terms of oxide) × 100)~~ 100 is desirably from 0.05% by weight to 4% by weight. By regulating the deposition amount to 0.05% by weight or larger, the effect of improving the cycle characteristics of the battery can be sufficiently produced. By regulating the deposition amount to 4% by weight or smaller, the possibility of battery capacity decrease can be diminished.

Please replace the paragraph beginning on page 38, line 26, with the following amended paragraph:

In the other Examples and the Comparative Examples, Group 3 elements (and aluminum in Comparative Examples) were imparted to base particles in the same manner as in the Example given above, except that the conditions shown in Table 1 were changed. Namely, an investigation was made on the case where base particles made of LiCoO_2 were used in place of ones whose composition was $\text{Li}_{1.01}\text{Mn}_{0.167}\text{Ni}_{0.167}\text{Co}_{0.667}\text{O}_2$. Furthermore, an investigation was made on the case where 10% by weight aqueous NaOH solution was used as an alkalinity regulator in place of 10% by weight aqueous LiOH solution. Moreover, investigations were made on the case where Y, Zr, La, Ce, or Yb was used as a Group 3 element in place of Gd, and on the case where Al was used in Comparative Examples in place of Gd. Incidentally, in the case where Y, Zr, La, Ce, or Yb was used, the salt of each Group 3 element to be dissolved in ion-exchanged water for preparing a deposition reaction liquid was a hydrated nitrate of the element. In the case where Al was used, $\text{Al}(\text{NH}_4)(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ was employed. Furthermore, with respect to the temperature in the heat treatment to be conducted after the impartation of a Group 3 element, an investigation was made on the case where a temperature of 150°C, 700°C, or 800°C was used in place of 400°C. Moreover, an investigation was made on the case where the concentration of the Group 3 element in a deposition reaction liquid was changed. As a result, in all the Examples and Comparative Examples in which Group 3 elements were imparted, it was ascertained that the Group 3 elements imparted were present in the form of an oxide, and that the Group 3 elements imparted had not been incorporated as a dopant in the base but were present on the surface of the base particles.

Please replace the paragraph beginning on page 51, line 18, with the following amended paragraph:

A positive active material, acetylene black, and poly(vinylidene fluoride) (PVdF) were mixed together in a ratio of 90:5:5 by weight. N-Methylpyrrolidone was added thereto as a dispersion medium and the resultant mixture was kneaded to disperse the ingredients. Thus, a coating fluid was prepared. Incidentally, the PVdF used was in the form of a liquid containing the solid dissolved/dispersed therein, and the amount thereof was on a solid weight basis. The coating fluid was applied to each side of an aluminum foil current collector having a thickness of 20 μm in such an amount as to result in a total thickness of 100 μm . Thus, a positive-electrode sheet was produced. This positive-electrode sheet was cut into a size having a width of 61 mm and a length of 445 mm. The positive ~~electrode~~ active material in a sheet end part was removed, and a positive terminal 3A made of aluminum and having a thickness of 100 μm and a width of 3 mm was attached to the end part by ultrasonic welding. Thus, a positive electrode plate was produced.

Please replace the paragraph beginning on page 52, line 10, with the following amended paragraph:

A carbon material (artificial graphite; particle diameter, 6 μm) as a negative active material, a styrene/butadiene rubber as a binder, and the sodium salt of carboxymethyl cellulose as a thickener were mixed together in a ratio of 97:2:1 by weight. The resultant mixture was kneaded together with purified water to obtain a coating fluid. This coating fluid was applied to each side of a copper foil current collector having a thickness of 10 μm to produce a negative-electrode sheet. This negative-electrode sheet was cut into a size having a width of 63 mm and a length of 460 mm. The negative ~~electrode~~ active material in a sheet end part was removed, and a negative nickel terminal 3B having a thickness of 100 μm and a width of 3 mm was attached to the end part by resistance welding. Thus, a negative electrode plate was produced.

Please replace the paragraph beginning on page 57, line 8, with the following amended paragraph:

Invention battery E 3 and comparative battery F 3 were separately prepared and subjected to the initial charge/discharge test. Thereafter, a voltage of 4.6 V was continuously applied thereto for 2 weeks (336 hours). Constant-current discharge was then conducted at a current of 0.2 ItA to a final voltage of 3.0 V. The percentage of the discharge capacity of each battery in this discharge to the initial discharge capacity of the battery is taken as "capacity retention after continuous charge (%)".